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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

PTOL-90A (Rev. 04/07)

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06 October 2008*.
2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.
3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-21 and 23-32* is/are pending in the application.
    4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5)☐ Claim(s) _____ is/are allowed.
6)☒ Claim(s) *1-21 and 23-32* is/are rejected.
7)☐ Claim(s) _____ is/are objected to.
8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.
10)☒ The drawing(s) filed on *06 October 2008* is/are: a)☐ accepted or b)☒ objected to by the Examiner.
    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
    a)☐ All   b)☐ Some * c)☐ None of:
      1.☐ Certified copies of the priority documents have been received.
      2.☐ Certified copies of the priority documents have been received in Application No. _____.
      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☐ Notice of References Cited (PTO-892)
2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3)☒ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date *6/5/08*.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .
5)☐ Notice of Informal Patent Application
6)☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1.   A request for continued examination under 37 CFR 1.114, including the fee set

forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this

application is eligible for continued examination under 37 CFR 1.114, and the fee set

forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action

has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on October

6, 2008 has been entered.

Response to Arguments

2.   Applicant's arguments filed October 6, 2008 have been fully considered but they

are not persuasive as follows.

3.   In response to the applicant's argument regarding claim 3 on pages 10-11, the

detailed description does not describe how the accumulating step "defines" a

demodulation operation. The applicant's argument suggests that the accumulating step

is part of the demodulation process. This is implicit in claim 1 since claim recites "A

method of demodulation, … comprising… iteratively accumulating."

Furthermore, the detailed description does not describe how information from the

signal "determine[s] an amount of demodulation processing to be performed." It is

unclear what information is used from the signal and how the amount of processing

changes based on this information since the detailed description does not describe

varying the amount of demodulation processing. The end of the demodulation process

is inherent and does not result from the use of "information from the signal."

4.   In response to the applicant's argument regarding claim 21 on page 13, the cited

paragraphs describe dynamic processing but does not describe the dynamic selection

of an algorithm **_via the channel estimate_**. For example, it is unclear how the channel

estimate affects or relates to the selection of an algorithm.

5.   In response to applicant's argument (see pages 15-16 of the response) that

Easton (US Patent No. 6,985,516 B1) does not anticipate claims 1, 2, 30 and 31

because "the starting samples being processed cannot correspond to any location in the

buffer" (see page 16, lines 1-3), Easton explicitly discloses that "the starting samples for

each signal instance being processed **_can correspond to any location in buffer 224_**."

(*emphasis added*) (See column 16, lines 21-25) The Examiner interprets "randomly

accessing" as accessing any location (i.e. non-sequential or non-adjacent locations) in

the buffer. The detailed description does not specifically define "randomly accessed"

nor does it disclose how the buffers are "randomly accessed" such that it precludes an

interpretation of accessing non-sequential locations in the buffer. Furthermore, claim 5,

as originally filed, recites "non-sequential access of digital samples form(*sic*) the first

memory element." Therefore, the buffer in Easton is being "randomly accessed" for the

starting samples of each signal instance and the rejections under Easton are not

withdrawn.

6.   In response to applicant's argument (see page 16) that Taniguchi et al. (US

Patent No. 7,035,318) does not disclose "randomly accessing" the buffers, the

Examiner interprets "randomly accessing" as accessing non-sequential or non-adjacent

locations (or address values) of the buffer. The detailed description does not

specifically define "randomly accessing" nor does it disclose how the buffers are

"randomly accessed" such that it precludes an interpretation of non-sequential address

values (as taught by Taniguchi et al., see column 4, lines 3-35). Furthermore, claim 5,

as originally filed, recites "non-sequential access of digital samples form(*sic*) the first

memory element." Therefore, Taniguchi et al. discloses the claimed invention and the

rejections under Taniguchi et al. are not withdrawn.

Drawings

7.   The drawings were received on October 6, 2008. These drawings are

acceptable.

8.   The drawings are objected to because:

        a.   in Figure 4, "PROCESSING ITERATION N+1" in state 44 should be

        "PROCESSING ITERATION N+2." (See Figure 4 of drawings filed February 27,

        2008);

b.   in Figures 7, 10 and 13, "SAMPLE BUFFER 22" should be "SAMPLE

BUFFERS 22" in order to be consistent with the label in Figure 2 (see also page

14, line 26);

c.   in Figure 13, "TRANSFORM 77" should be "TRANSFORMER 77" (see

page17, line 22;

d.   in Figure 18, "Recieved" is misspelled. It has not been corrected as

indicated by the applicant on page 8 of the response.

9.   The drawings are objected to under 37 CFR 1.83(a). The drawings must show

every feature of the invention specified in the claims. Therefore, the following must be

shown or the feature(s) canceled from the claim(s): "a buffer" in combination with "an

output memory buffer" as recited in claim 11. Claim 11 recites two buffers (i.e. "a buffer"

and "an output memory buffer") wherein Figure 7 shows only one buffer (i.e. "54").

10.   The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5)

because they do not include the following reference sign(s) mentioned in the

description: "91" on page 22, paragraph [0087] is not shown in Figures 18 or 19.

11.   The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5)

because they include the following reference character(s) not mentioned in the

description: "DYNAMIC PROCESSING ELEMENT 60" in Figures 7 and 13.

12.   Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

13.   The disclosure is objected to because of the following informalities: on page 17, lines 26-27, "sample buffer 22" should be "sample buffers 22" in order to be consistent with the designation for reference number 22 in Figure 2.

Appropriate correction is required.

Claim Objections

14.   Claim 30 is objected to because of the following informalities: the Examiner

suggests changing "waveform, wherein the CDMA-compliant waveform is processed

asynchronously" on lines 3-4 to "waveform by processing the CDMA-compliant

waveform asynchronously" for clarification. Appropriate correction is required.

Claim Rejections - 35 USC § 112

15.   The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of
> making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the
> art to which it pertains, or with which it is most nearly connected, to make and use the same and shall
> set forth the best mode contemplated by the inventor of carrying out his invention.

16.   The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly
> claiming the subject matter which the applicant regards as his invention.

17.   Claims 3 and 19-28 are rejected under 35 U.S.C. 112, first paragraph, as failing

to comply with the enablement requirement. The claim(s) contains subject matter which

was not described in the specification in such a way as to enable one skilled in the art to

which it pertains, or with which it is most nearly connected, to make and/or use the

invention.

18.   With regard to claim 3, the detailed description does not describe **_how_** the

accumulating step "defines a demodulation operation and comprises using information

from the signal to determine an amount of demodulation processing to be performed" as

recited in claim 3, lines 2-4. The description of Figures 7, 10 and 13 does not mention

how a demodulation operation is "defined" by the accumulator in the respective figures.

Furthermore, it is unclear how the iteratively accumulating step determines the "amount of demodulation processing." For example, what information is used to determine the amount of demodulation processing. Therefore, one skilled in the art is not enabled to make and/or use the claimed invention.

19.   With regard to claim 19, the detailed description does not describe a means for dynamically switching to optimal functionality based on channel estimates. Furthermore, the disclosure does not describe how the channel estimates cause the apparatus to change functions. The disclosure also does not describe which limitations in claim 7 are "switched" and how they are switched to achieve "optimal functionality."

In the response filed February 27, 2008, the applicant pointed to paragraphs [0042] and [0070] - [0074] as enabling the claimed invention of claim 19. However, upon further reconsideration, these paragraphs do not explain how the apparatus "dynamically switch[es] to optimal functionality based on channel estimates." For example, paragraph [0042] mentions "dynamic path processing" in terms of using various algorithms, not in terms of changes based on channel estimates. Furthermore, paragraphs [0070] - [0074] do not explain any "switching" based on channel estimates.

20.   With regard to claim 20, the detailed description also does not describe an accumulator that accumulates "based on the channel estimate from the channel estimator" (see lines 8-9). The language of the claim suggests that the channel estimate affects or changes the function of the accumulator. However, the detailed description corresponding to Figures 7 and 13 describes using the channel estimate to

weight the despread signal (see paragraph [0058]), not to affect/change the functionality or operation of the accumulator itself.

21.   With regard to claim 21, the detailed description also does not describe dynamically selecting an algorithm to accumulate the digital samples ***via the channel estimate.*** For example, it is unclear how to select an algorithm based on the channel estimate.

22.   Dependent claims are rejected under the same ground as the claims from which they depend.

23.   Claim 12 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The specification, as originally filed, does not describe performing searches for multi-path components by correlating the multi-path component against a timing hypothesis. Paragraph [0075] describes determining correlation of samples with various hypotheses but not "correlating the components against a timing hypothesis."

24.   Claims 3-5, 13, 14, 19 and 31 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

25.   In claim 3, it is unclear what is meant by "iteratively accumulating... **_defines_** a demodulation operation." It is unclear what is meant by the term "defines" in the claim. For example, how does the "iteratively accumulating" step relate to "a demodulation operation"?

26.   In claim 4, it is unclear from the claim language how the "determination of multi-path components" step and the "processing units" relate to the steps recited in claim 1. It is also unclear if the multi-path components in claim 4 are related to the multi-path component in claim 1. (Claim 4 has not been amended as the applicant alleges on page 13 of the response.)

27.   Claim 5 recites the limitation "the non-sequential access" in line 2. There is insufficient antecedent basis for this limitation in the claim.

28.   Claim 13 recites the limitation "the demodulation element" in lines 8 and 9. There is insufficient antecedent basis for this limitation in the claim.

29.   Claim 13 also recites the limitation "the searching element" in line 9. There is insufficient antecedent basis for this limitation in the claim.

30.   In claim 13, it is also unclear from the claim language how the permutation block (as shown in Figure 16) interfaces with the limitation recited in claim 7 (as shown in Figure 7). For example, is the "plurality of buffers" on line 4 the same as the "plurality of buffers" in claim 7, line 3?

       Furthermore, it is unclear what is meant by "a permutation block **_following_** a plurality of physical buffers" in claim 13, lines 2-3. For example, are the output(s) of the buffers connected to the input of the "permutation block"?

31.   Claim 14 recites the limitation "the demodulator" in lines 2-3. There is insufficient antecedent basis for this limitation in the claim.

32.   With regard to claim 19, it is unclear how the "means for dynamically switching" interfaces with or relates to the limitations recited in claim 7.

33.   Claim 31 recites the limitation "the entire demodulation" in line 1. There is insufficient antecedent basis for this limitation in the claim. Furthermore, since a demodulation process may include a number of steps/components, it is also unclear what constitutes "the entire demodulation" as recited so one of ordinary skill is apprised of the scope of the invention.

34.   Dependent claims are rejected under the same ground as the claims from which they depend.

Claim Rejections - 35 USC § 101

35.   35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

36.   Claims 30 and 31 are rejected under 35 U.S.C. 101 as not falling within one of the four statutory categories of invention. While the claims recite a series of steps or acts to be performed, a statutory "process" under 35 U.S.C. 101 must (1) be tied to another statutory category (such as a particular apparatus), or (2) transform underlying subject matter (such as an article or material) to a different state or thing (Reference the May 15, 2008 memorandum issued by Deputy Commissioner for Patent Examining Policy, John J. Love, titled "Clarification of 'Processes' under 35 U.S.C. 101", see

http://www.uspto.gov/web/offices/pac/dapp/opla/preognotice/section_101_05_15_2008.pdf). The

instant claims neither transform underlying subject matter nor positively tie to another

statutory category that accomplishes the claimed method steps, and therefore do not

qualify as a statutory process.

Claim Rejections - 35 USC § 102

37.   The text of those sections of Title 35, U.S. Code not included in this action can

be found in a prior Office action.

38.   Claims 1, 2, 30 and 31 are rejected under 35 U.S.C. 102(e) as being anticipated

by Easton (US Patent No. 6,985,516 cited in the Office Action mailed April 17, 2007).

39.   With regard to claims 1 and 2, Figures 2 and 5 of Easton disclose the claimed

invention including buffering digital samples into a first memory element (224); randomly

accessing digital samples to correlate a particular multi-path component (522 and 224);

and iteratively accumulating the correlated particular multi-path component into a

second memory element (524 and 234). (See also column 3, lines 48-54; column 6,

lines 36-59; column 14, lines 4-40; and column 16, lines 19-29)

40.   With regard to claims 30 and 31, Easton discloses the claimed invention

including demodulating a CDMA-compliant waveform wherein the waveform is

processed asynchronously to a sample rate associated with the waveform and based

on programmed instructions. (See column 2, lines 33-36 and 48-52; column 3, lines 56-

57; and column 7, lines 21-22)

41.   Claims 1 and 2 are rejected under 35 U.S.C. 102(e) as being anticipated by

Taniguchi et al. (US Patent No. 7,035,318 B2 cited in the Office Action mailed

September 28, 2007). Figure 9 of Taniguchi et al. discloses the claimed invention

including buffering samples into a first memory element (52); randomly accessing digital

samples to correlate a particular multi-path component (60a and 60b); and iteratively

accumulating the correlated multi-path component into a second memory element (60c

and 61). (See also abstract; Figures 3 and 4; column 5, lines 42-46; column 6, lines 35-

54; column 8, lines 33-44; and column 10, lines 39-62) Since the buffer is read non-

sequentially (see column 8, lines 33-44), the circuit in Taniguchi et al. is randomly

accessing the digital samples as recited in claim 1.

Claim Rejections - 35 USC § 103

42.   The text of those sections of Title 35, U.S. Code not included in this action can

be found in a prior Office action.

43.   Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Taniguchi

et al. as applied to claim 1 above, and further in view of Schlem et al. (US Pub. No.

2003/0235238 A1 cited in the Office Action mailed September 28, 2007). Taniguchi et

al. discloses the claimed invention including demodulation via non-sequential access of

digital samples from the first memory element. It is implicit that the data read from

buffer section 52 based on the timing information of a particular multi-path component

(see column 8, lines 33-44) is demodulated in order to recover the transmitted data.

However, Taniguchi et al. does not teach performing channel estimation.

Figure 2 of Schlem et al. discloses weighting the despread signal in order to

optimize data recovery. (See paragraph [0056]) It would have been obvious to one of

ordinary skill in the art at the time the invention was made to combine the teachings of

Schlem et al. and Taniguchi in order to improve data recovery by compensating for

channel conditions that affect the quality of the received signal.

44.   Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Easton or

Taniguchi et al. as applied to claim 1 above, and further in view of Butler et al. (US

Patent No. 6,748,010 B1 cited in the Office Action mailed September 28, 2007). Easton

and Taniguchi et al. each disclose the claimed invention except for tuning to a non-

original RF frequency, buffering digital samples while tuned at the non-original RF

frequency, retuning the RF frequency to the original frequency, and performing search

and channel estimation while operating on the digital samples of the original frequency.

Since Butler et al. discloses that CDMA communication systems use a pilot

channel and a data/traffic channel (i.e. channels with different frequencies), it would

have been obvious to one of ordinary skill in the art at the time the invention was made

to tune or retune the receiver in Easton or Taniguchi et al. to the appropriate

frequencies for receiving the pilot signal and data in order to accurately recover the

transmitted data. Regardless of which frequency the receiver is tuned, the receiver

buffers the digital samples. Furthermore, it is known in the art that pilot signal is commonly used for performing search and channel estimation.

45.   Claims 7-10, 19-20 and 23-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Taniguchi et al. in view of Schlem et al.

46.   With regard to claim 7, Figure 9 of Taniguchi et al. discloses the claimed invention including buffers (52) switchable between a write state and a read state (Figure 3); a despreading element (60a and 60b); and an accumulator (60c) that iteratively accumulates into a buffer (61). (See also abstract; Figure 4; column 5, lines 42-46; column 6, lines 35-54; column 8, lines 33-44; and column 10, lines 39-62) Since the buffer is read non-sequentially (see column 8, lines 33-44), the circuit in Taniguchi et al. is randomly accessing the digital samples as recited in claim 7. However Taniguchi et al. does not teach a weighting element as recited in claim 7, lines 7-8.

Figure 2 of Schlem et al. discloses weighting the despread signal in order to optimize data recovery. (See paragraphs [0055]-[0056]) It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Schlem et al. and Taniguchi in order to improve data recovery by compensating for channel conditions that affect the quality of the received signal.

47.   With regard to claim 8, Taniguchi et al. in view of Schlem et al. discloses the claimed invention except for a power control as recited. Since power conservation is desirable in cellular communication devices, it would have been obvious to one of ordinary skill in the art at the time the invention was made to add a power control to

power down after processing of desired multi-path components and power up when data is ready to be processed in order to minimize power consumption in the circuit disclosed by Taniguchi et al. in view of Schlem et al.

48.   With regard to claim 9, Taniguchi et al. in view of Schlem et al. discloses the claimed invention including three physically separate buffers. However, Taniguchi et al. in view of Schlem et al. does not disclose that one buffer is for receiving data and that two buffers is for random access by correlator. It would have been an obvious matter of design choice to one of ordinary skill in the art at the time the invention was made to designate the number of buffers for receiving data and for random access by the correlator based on the rate at which data is being stored and read for processing. The number of buffers allocated for writing to and reading from does not affect the functionality of the overall circuit.

49.   With regard to claim 10, Taniguchi et al. in view of Schlem et al. discloses the claimed invention except for five separate buffers as recited. It would have been an obvious matter of design choice to one of ordinary skill in the art at the time the invention was made to determine the number of buffers to use with a given number of the buffers designated for receiving data and for random access by the correlator based on the rate at which data is being stored and read for processing. The number of buffers and the specific allocation of these buffers for writing to and reading from do not affect the functionality of the overall circuit.

50.   With regard to claim 19, Taniguchi et al. in view of Schlem et al. discloses the claimed invention including dynamically switching to optimal functionality based on channel estimates. (See Schlem et al., paragraph [0056])

51.   With regard to claim 20, Taniguchi et al. discloses the claimed invention including a despreader (e.g. 54a and 54 b) that obtains samples from a first memory buffer (52) and an accumulator (e.g. 54c) that accumulates digital samples into a second buffer (e.g. 54d). (See also abstract; Figures 4 and 9; column 5, lines 42-46; column 6, lines 35-54; column 8, lines 33-44; and column 10, lines 39-62) Since the buffer is read non-sequentially (see column 8, lines 33-44), the circuit in Taniguchi et al. is randomly accessing the digital samples as recited in claim 20. However Taniguchi et al. does not teach a channel estimator.

Figure 2 of Schlem et al. discloses a channel estimator that provides a channel estimate of a multi-path component in order to optimize data recovery. (See paragraphs [0055]-[0056]) It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Schlem et al. and Taniguchi in order to improve the accuracy of the data recovery by compensating for channel conditions that affect the quality of the received signal.

52.   With regard to claim 23, Taniguchi et al. in view of Schlem et al. discloses the claimed invention including a feedback loop wherein the data is read from the second memory buffer and used in the accumulation of the digital samples. (See Taniguchi et al., Figures 4 and 9)

53.   With regard to claim 24, Taniguchi et al. in view of Schlem et al. discloses the claimed invention including accumulated digital samples comprise partially processed symbols. (See Taniguchi et al., Figures 4 and 9)

54.   With regard to claim 25, Taniguchi et al. in view of Schlem et al. discloses the claimed invention except for a power control arrangement. Since power conservation is desirable in cellular communication devices, it would have been obvious to one of ordinary skill in the art at the time the invention was made to add a power controller to toggle the circuit between an off state and an on state in order to minimize power consumption in the receiver disclosed by Taniguchi et al. in view of Schlem et al.

55.   With regard to claims 26 and 27, Taniguchi et al. in view of Schlem et al. discloses the claimed invention including using a pilot symbol to determine the channel estimate. (See Schlem et al., paragraph [0055]) However, Taniguchi et al. in view of Schlem et al. does not disclose whether the pilot signal is a burst-pilot signal or a continuous-pilot signal. It would have been an obvious matter of design choice to implement the circuit in a system that used a burst-pilot signal or a continuous-pilot signal since the type of pilot signal does not affect the operation or functionality of the apparatus. Furthermore, the applicant has not disclosed that using a particular type of pilot signal provides an advantage, is used for a particular purpose or solves a stated problem. One of ordinary skill in the art would have expected applicant's invention to perform equally well with either type of pilot signal.

56.   Claims 11, 29, 32 and 33 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Taniguchi et al. in view of Schlem et al. as applied to claims 7 and

20, respectively, above, and further in view of Garyantes et al. (US Pub. No.

2001/0036195 A1 cited in the Office Action mailed September 28, 2007).

57.   With regard to claims 11 and 29, Taniguchi et al. in view of Schlem et al.

discloses the claimed invention except for selectively storing the accumulated energy in

an output memory buffer. Figure 1 of Garyantes et al. teaches storing the accumulated

despread energy in an output memory buffer (10). (See also Figure 2; and paragraphs

[0011], [0012], [0044] and [0045]) It would have been obvious to one of ordinary skill in

the art at the time the invention was made to combine the teachings of Garyantes with

the receiver disclosed by Taniguchi et al. in view of Schlem et al. in order to have

greater flexibility and control over when the results are processed or outputted.

58.   With regard to claims 32 and 33, Taniguchi et al. in view of Schlem et al. and

Garyantes et al. discloses the claimed invention. Labeling or designating the "buffer" as

"an output memory buffer" or "an intermediate results buffer" is merely a naming

convention that does not affect the functionality of the buffer itself.

59.   Claims 15 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable

over Taniguchi et al. in view of Schlem et al. as applied to claim 7 above, and further in

view of Butler et al.

60.   With regard to claim 15, Taniguchi et al. in view of Schlem et al. discloses the

claimed invention except for tuning to a non-original RF frequency, buffering digital

samples while tuned at the non-original RF frequency, retuning the RF frequency to the

original frequency, and performing search and channel estimation while operating on

the digital samples of the original frequency.

Since Butler et al. discloses that CDMA communication systems use a pilot

channel and a data/traffic channel (i.e. channels with different frequencies), it would

have been obvious to one of ordinary skill in the art at the time the invention was made

to tune or retune the receiver in Taniguchi et al. in view of Schlem et al. to the

appropriate frequencies for receiving the pilot signal and data in order to accurately

recover the transmitted data. Regardless of which frequency the receiver is tuned, the

receiver buffers the digital samples. Furthermore, it is known in the art that pilot signal

is commonly used for performing search and channel estimation.

61.   With regard to claim 16, Taniguchi et al. in view of Schlem et al. and Butler et al.

discloses the claimed invention since it would have been obvious to one of ordinary skill

in the art at the time the invention was made for the buffering means maintain the digital

samples from the non-original RF frequency in order to save the digital samples for

subsequent processing if necessary.

62.   Claims 17 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable

over Taniguchi et al. in view of Schlem et al. as applied to claims 7 and 20, respectively,

above, and further in view of Easton et al.

63.   With regard to claim 17, Taniguchi et al. in view of Schlem et al. discloses the

claimed invention except for means for processing a plurality of sets of digital samples

from a plurality of distinct receiver RF chains.

Easton et al. discloses a receiver that stores a plurality of sets of digital samples

from a plurality of distinct receiver RF chains in a buffer. (See column 6, line 36-39) It

would have been obvious to one of ordinary skill in the art at the time the invention was

made to combine the teachings of Easton with the teachings of Taniguchi et al. in view

of Schlem et al. in order to improve data recovery by using diversity (via a plurality of

distinct receiver chains) in the receiver.

64.   With regard to claim 28, Taniguchi et al. in view of Schlem et al. discloses the

claimed invention except that the digital signals stored in the first memory buffer are not

communicated in a multiple transmit, multiple receive antenna scheme. Since it is well-

known to apply transmit diversity to mitigate the effects of multi-path fading, it would

have been an obvious matter of design choice to apply the circuit disclosed by

Taniguchi et al. in view of Schlem et al. in a multiple transmit antenna scheme in order

to further reduce the effects of multi-path fading. Furthermore, the source or cause of

the multi-path components does not affect the operation or functionality of the receiver.

Since Easton et al. teaches applying a multiple receiver antenna scheme to a

CDMA receiver (see column 6, line 36-39), it would have been obvious to one of

ordinary skill in the art at the time the invention was made to also apply a multiple

receiver antenna scheme to the receiver disclosed by Taniguchi et al. in view of Schlem

et al. in order to improve data recovery by using also diversity in the receiver.

65.   Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over

Taniguchi et al. in view of Schlem et al. as applied to claim 7 above, and further in view

of Subrahmanya et al. (US Pub. No. 2003/0128678 A1 cited in the Office Action mailed

September 28, 2007) Taniguchi et al. in view of Schlem et al. discloses the claimed

invention including a receiver that processes multi-path components. (See Taniguchi et

al., column 1, lines 7-12).

      Since Subrahmanya et al. teaches using transmit diversity in a CDMA system

(see paragraph [0006]), it would have been an obvious matter of design choice to apply

the receiver of Taniguchi et al. in view of Schlem et al. to a system with transmitter

diversity in order to further combat the effects of multi-path components. Since the

receiver of Taniguchi et al. in view of Schlem et al. inherently processes signals having

a plurality of multi-path components (see Taniguchi et al., column 1, lines 7-12), the

source or cause of the multi-path components (e.g. via transmitter diversity) does not

affect the operation or functionality of the disclosed receiver.

66.   Claim 28 is rejected under 35 U.S.C. 103(a) as being unpatentable over

Taniguchi et al. in view of Schlem et al. as applied to claims 7 and 20, respectively,

above, and further in view of Subrahmanya et al. and Easton et al. Taniguchi et al. in

view of Schlem et al. discloses the claimed invention except that the digital signals

stored in the first memory buffer are not communicated in a multiple transmit, multiple

receive antenna scheme.

Since Subrahmanya et al. teaches using transmit diversity in a CDMA system (see paragraph [0006]), it would have been an obvious matter of design choice to apply the receiver of Taniguchi et al. in view of Schlem et al. to a system with a multiple transmit antenna scheme in order to further combat the effects of multi-path components. Furthermore, since the receiver of Taniguchi et al. in view of Schlem et al. inherently processes signals having a plurality of multi-path components (see Taniguchi et al., column 1, lines 7-12), the source or cause of the multi-path components (e.g. via transmitter diversity) does not affect the operation or functionality of the disclosed receiver.

Since Easton et al. teaches applying a multiple receiver antenna scheme to a CDMA receiver (see column 6, line 36-39), it would have been obvious to one of ordinary skill in the art at the time the invention was made to also apply a multiple receiver antenna scheme to the receiver disclosed by Taniguchi et al. in view of Schlem et al. and Subrahmanya et al. in order to improve data recovery by using also diversity in the receiver.

Conclusion

67.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to Betsy L. Deppe whose telephone number is (571) 272-3054. The examiner can normally be reached on Monday, Wednesday and Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chieh M. Fan can be reached on (571) 272-3042. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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/Betsy L. Deppe/
Primary Examiner, Art Unit 2611